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Nonlinear oscillations of gas in an open tube near the resonance frequency in the shock-free mode

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Abstract

© Published under licence by IOP Publishing Ltd. The forced oscillations of gas in an open tube, excited by harmonical oscillations of piston in the shock-free mode were investigated near the first first eigenfrequencies. An expression for the pressure oscillations of gas was obtained for the tube with unrounded end without flange. The amplitude impact of piston displacement on the oscillations of pressure and velocity of the secondary flow of gas was investigated. The comparison of theoretical calculations with experimental data was executed. The effect of secondary flow on the particle drift along the tube axis with acoustic oscillations of gas was shown.

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